



ImmsLink Web Service Specification

Enabling Immunization Information System Data Submissions and Queries

Revision History:

| | |
|------------|--|
| 2017.06.07 | Cumulative update of all prior changes |
| 2018.01.02 | (fix omission) Added <i>birthOrder</i> and <i>mutipleBirthIndicator</i> properties to <i>patientData</i> object summary |
| 2018.04.27 | PatientData object: added <i>deathIndicator</i> and <i>deathIndicatorDate</i> fields FindHistory, FindHistoryWithForecast, UpdateHistory responses: added <i>environment</i> field MessageStatusQuery method, QueryResponseException object: (newly added) Misc: standardized descriptions of <i>environment</i> and <i>registryCodeList</i> in UpdateHistory, FindHistory, and FindHistoryWithForecast requests; clarified that PatientData's <i>ssn</i> field should not be used |
| 2018.09.27 | Location object: updated length of <i>id</i> field from 20 to 200, and added <i>npi</i> field PatientData object: added <i>grade</i> and <i>relevantIndicatorList</i> fields MessageStatusQuery response: removed <i>environment</i> , <i>subscriberId</i> , and <i>messageBatch</i> fields; added <i>queryStatus</i> , <i>facilityId</i> , and <i>requestType</i> fields Misc: removed statement in FindHistoryWithForecast response's <i>queryStatus</i> field description which erroneously indicated that a low-probability match on one candidate would include immunization recommendations; removed statement describing /html option on FindHistoryWithForecast (as that option has been discontinued); updated list of additional operations shown in online help; fixed description of Location's <i>address</i> field which erroneously characterized it as a collection; minor font and alignment corrections |
| 2019.03.11 | Name object: changed <i>lastName</i> field to optional for Provider.name (but remains required for other uses) |
| 2020.03.17 | PatientData object: added <i>forecastEvaluationData</i> field VaccinationEvaluation object: (newly added) AntigenEvaluation object: (newly added) UpdateHistory request: added <i>returnForecastEval</i> field |
| 2020.05.18 | PatientData object: added <i>observationList</i> field Observation object: (newly added) |
| 2020.05.29 | ForecastDetail object: updated data type and description for date properties and added note about date format |
| 2021.01.26 | Address object: added <i>county</i> field PatientData object: added <i>occupation</i> field Vaccination object: added <i>doseNumber</i> and <i>seriesCompletion</i> fields |
| 2021.02.09 | Vaccination object: added <i>priorityGroup</i> field |
| 2021.03.15 | Vaccination object: added <i>patientOccupation</i> field |
| 2021.04.02 | PhoneNumber object: changed <i>equipmentType</i> field to default to PH |
| 2021.07.27 | Vaccination object: added <i>vtrcksPin</i> field |
| 2021.08.05 | PatientData object: added <i>primaryLanguage</i> field |
| 2021.11.05 | UpdateHistory, FindHistory, and FindHistoryWithForecast requests: removed deprecated <i>registryCodeList</i> field MessageStatusQuery response: updated description of <i>registryCode</i> field Misc: minor grammatical corrections |
| 2022.02.04 | Vaccination object: added <i>ndc</i> and <i>cvrsAdminType</i> fields |

| | |
|-------------------|--|
| 2022.02.16 | Vaccination object: added <i>cvx</i> field |
| 2022.05.06 | FindHistoryWithForecast request: added <i>returnContraindicatedSeries</i> field; clarified use of <i>patientData.relevantObservationList</i> in forecasting Contraindication object: deleted PatientData object: removed obsolete <i>contraindicationList</i> field |
| 2022.11.01 | PatientData object: added <i>extendedProtectionIndicator</i> field |

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Overview

The ImmsLink Web Service consists of the following four operations:

- **UpdateHistory:** Submits a record of an administered immunization to the registry IIS
- **FindHistory:** Performs a query on the IIS to retrieve immunization history
- **FindHistoryWithForecast:** Same as FindHistory but additionally returns information on the recommended immunizations
- **MessageStatusQuery:** Retrieves the status of a previously submitted message

All four are stateless operations using the same basic JSON structures described below. In addition to JSON (preferred), these operations will alternatively accept and return data in XML format.

Additional detail and sample messages are provided online:

<https://immswebtesttext.stchome.com/publicservice/ImmsLinkServices/help>

Note that there are additional operations utilized in other functional scopes that are also listed in the online help:

- FacilityLookup
- GetLocation
- ListLocations
- QueryForecast
- StatusCheck

The tables below provide the detailed description and requirements for the data objects and elements. Not all data elements are required, but if a data object is sent then the required elements within that data object must be provided. In addition, the sending system can send its coded values for any field that is marked as Mapped=Y and then STC will configure ImmsLink with the mapping for those codes. Prior to beginning testing, for any coded values that will not use the ImmsLink natively supported values, please send a table containing the value and description to immslinksupport@stchome.com.

UpdateHistory

HTTP Request

POST /UpdateHistory

The UpdateHistory method sends immunization information to the state or jurisdictional registry.

Request Body

Supply the following in the request body:

| Property Name | Type (len) | Required? | Mapped? | Description |
|----------------|-----------------------|-----------|---------|---|
| authentication | <i>Authentication</i> | Y | | Authentication details for the request. |
| environment | string (1) | | | Optional value (T/P) to override administrative setting defining whether the interface is in test or production. This field should normally be set null or empty as ImmsLink will determine the environment based on the status of the interface. |
| patientData | <i>PatientData</i> | Y | | Patient details. |
| subscriberKey | string (250) | | | Optional (recommended) field that can be sent by the calling system and will be returned in the response. To enable STC support to be able to assist with an inquiry about a message, this value should be provided to identify the message. If this value is not populated, STC will use the vaccination.orderNumber (when multiple order numbers are provided in the same message, the first one will be used). |

Response Body

Returns the following:

```
{
  "environment": {string},
  "errorCode": {string},
  "errorList": [{string}],
  "messageKey": {string},
  "status": {string},
  "subscriberKey": {string},
}
```

| Property Name | Type (len) | Description |
|---------------|------------|---|
| environment | string (1) | Returns T if the message was sent to the registry's Test system; otherwise returns P (indicating Production). |

| | | |
|---------------|-----------------|--|
| errorCode | string (5) | Error code returned for unsuccessful messages. See <i>ImmsLink Integration Guide</i> for list of possible values. |
| errorList | array of string | List of error messages generated while processing the request (there is no maximum length). |
| messageKey | string (36) | Unique identifier generated by ImmsLink for successfully parsed messages to identify the request/response pair. |
| status | string (10) | Status of the request: ok – successfully sent to registry IIS error – not sent, see errorCode and errorList for more info pending – network issue with contacting the IIS or configuration/setup issue within ImmsLink; will be reprocessed automatically |
| subscriberKey | string (250) | Returns the value provided in the request. |

FindHistory

HTTP Request

POST /FindHistory

The FindHistory method queries immunization information from the state or jurisdictional registry.

Request Body

Supply the following in the request body:

| Property Name | Type (len) | Required? | Mapped? | Description |
|----------------|-----------------------|-----------|---------|--|
| authentication | <i>Authentication</i> | Y | | Authentication details for the request. |
| environment | string (1) | | | Optional value (T/P) to override administrative setting defining whether the interface is in test or production. This field should normally be set null or empty as ImmsLink will determine the environment based on the status of the interface. |
| patientData | <i>PatientData</i> | Y | | Patient details. |
| subscriberKey | string (250) | | | Optional field that can be sent by the calling system and will be returned in the response. |

Although the /FindHistory request uses the same patientData object as the /UpdateHistory request, the list of fields that may be used by the registry in processing the query is as follows:

- patientName (first, middle, last)
- dateOfBirth
- sex
- ssn (this field is not used due to privacy concerns)
- guardianList
- motherMaidenName
- medicalRecordNumber
- stateRegistryId (only used when re-querying a patient)
- addressList (street, city, state, zip)
- phoneNumberList

Additionally, the location object is required to provide context for the request.

Response Body

Returns the following:

```
{
  "environment": {string},
  "errorCode": {string},
  "errorList": [{string}],
  "messageKey": {string},
  "patientDataList": [{PatientData}],
  "queryStatus": {string},
  "status": {string},
  "subscriberKey": {string}
}
```

| Property Name | Type (len) | Description |
|-----------------|-----------------------------|---|
| environment | string (1) | Returns T if the message was sent to the registry's Test system; otherwise returns P (indicating Production). |
| errorCode | string (5) | Error code returned for unsuccessful messages. See <i>ImmsLink Integration Guide</i> for list of possible values. |
| errorList | array of string | List of error messages generated while processing the request (there is no maximum length). |
| messageKey | string (36) | Unique identifier generated by ImmsLink for successfully parsed messages to identify the request/response pair. |
| patientDataList | array of <i>PatientData</i> | Array of patients matching the query. |
| queryStatus | string (8) | Indicator of whether a patient match was found: Found – patient was matched with high probability (patientDataList will have exactly one entry, with immunization history) |

| | | |
|---------------|--------------|---|
| | | Requery – patient was matched with low probability (patientDataList will have one or more entries, but no immunization history) NotFound – no patients matched the query (patientDataList will be empty) |
| status | string (10) | Status of the request: ok – successfully sent to and returned from registry IIS error – not sent, see errorCode and errorList for more info |
| subscriberKey | string (250) | Returns the value provided in the request. |

FindHistoryWithForecast

HTTP Request

POST /FindHistoryWithForecast

The FindHistoryWithForecast method queries immunization information from the state or jurisdictional registry and determines recommended immunizations for the patient.

Request Body

Supply the following in the request body:

| Property Name | Type (len) | Required? | Mapped? | Description |
|--------------------|-----------------------|-----------|---------|--|
| authentication | <i>Authentication</i> | Y | | Authentication details for the request. |
| environment | string (1) | | | Optional value (T/P) to override administrative setting defining whether the interface is in test or production. This field should normally be set null or empty as ImmsLink will determine the environment based on the status of the interface. |
| patientData | <i>PatientData</i> | Y | | Patient details. |
| subscriberKey | string (250) | | | Optional field that can be sent by the calling system and will be returned in the response. |
| returnForecastEval | boolean | | | If set true, STC will return a CDSi-compliant evaluation of |

| | | | | |
|-----------------------------|---------|--|--|--|
| | | | | the patient's vaccination history per the ACIP schedules. See PatientData's forecastEvaluationData field for details. (Without this field set, STC will still return a somewhat simpler evaluation of the immunization history—see Vaccination's messageList field for details.) |
| returnContraindicatedSeries | boolean | | | If set true, STC will include contraindicated series in the returned forecast. (Without this field set, STC will not include contraindicated series.) Note that the question of contraindication is determined based on values supplied in patientData's relevantObservationList property. |

Although the /FindHistoryWithForecast request uses the same patientData object as the /UpdateHistory request, the list of fields that may be used by the registry in processing the query is as follows:

- patientName (first, middle, last)
- dateOfBirth
- sex
- ssn (this field is not used due to privacy concerns)
- guardianList
- motherMaidenName
- medicalRecordNumber
- stateRegistryId (only used when re-querying a patient)
- addressList (street, city, state, zip)
- phoneNumberList

Additionally, the location object is required to provide context for the request.

Also, the following patientData fields are used when determining the immunization forecast:

- relevantObservationList (medical observations that will affect which immunization series are chosen)

- vaccinationList (administered vaccinations stored in the sending system)

Existing patient vaccination and contraindication information is not required, and if not sent, the immunization recommendations will calculate based solely on the immunization history returned from the IIS.

Response Body

Returns the following:

```
{
  "environment": {string},
  "errorCode": {string},
  "errorList": [{string}],
  "messageKey": {string},
  "patientDataList": [{PatientData}],
  "queryStatus": {string},
  "status": {string},
  "subscriberKey": {string},
}
```

| Property Name | Type (len) | Description |
|-----------------|-----------------------------|---|
| environment | string (1) | Returns T if the message was sent to the registry's Test system; otherwise returns P (indicating Production). |
| errorCode | string (5) | Error code returned for unsuccessful messages. See <i>ImmsLink Integration Guide</i> for list of possible values. |
| errorList | array of string | List of error messages generated while processing the request (there is no maximum length). |
| messageKey | string (36) | Unique identifier generated by ImmsLink for successfully parsed messages to identify the request/response pair. |
| patientDataList | array of <i>PatientData</i> | Array of patients matching the query. |
| queryStatus | string (8) | Indicator of whether a patient match was found: Found – patient was matched with high probability (patientDataList will have exactly one entry, with immunization history and recommendations) Requery – patient was matched with low probability (patientDataList will have one or more entries, with no immunization history) NotFound – no patients matched the query (patientDataList will have exactly one entry, copied from the data passed in, with recommendations) |
| status | string (10) | Status of the request: ok – successfully sent to and returned from registry IIS |

| | | |
|---------------|--------------|---|
| | | error – not sent, see errorCode and errorList for more info |
| subscriberKey | string (250) | Returns the value provided in the request. |

MessageStatusQuery

HTTP Request

POST /MessageStatusQuery

The MessageStatusQuery method retrieves the status of any message previously submitted.

Request Body

Supply the following in the request body:

| Property Name | Type (len) | Required? | Mapped? | Description |
|----------------|-----------------------|-----------|---------|--|
| authentication | <i>Authentication</i> | Y | | Authentication details for the request. |
| messageKey | string (36) | Y | | Unique identifier generated by ImmsLink and returned in the original response. |

If a message returns a pending status when originally sent, ImmsLink continues to retry the message for some period. Calling this method returns the status of the most recent attempt to send the message.

Response Body

Returns the following:

```
{
  "errorCode": {string},
  "errorList": [{string}],
  "facilityId": {string},
  "messageException": {QueryResponseException},
  "messageKey": {string},
  "messageStatus": {string},
  "queryStatus": {string},
  "registryCode": {string},
  "requestType": {string},
  "status": {string}
}
```

| Property Name | Type (len) | Description |
|---------------|------------|-------------|
|---------------|------------|-------------|

| | | |
|------------------|-------------------------------|---|
| errorCode | string (5) | Error code returned for the most recent attempt to send the message. See <i>ImmsLink Integration Guide</i> for list of possible values. |
| errorList | array of string | List of error messages generated from the most recent attempt to send the message (there is no maximum length). |
| facilityId | string (200) | Same as Location's id field. |
| messageException | <i>QueryResponseException</i> | Details about the most recent failure to send the message (if messageStatus is still unsuccessful) |
| messageKey | string (36) | Echo of messageKey submitted for querying. |
| messageStatus | string (7) | Status of most recent attempt to send queried message. See UpdateHistory response for possible values and meanings. |
| queryStatus | string (8) | Query status of most recent attempt to send message. See FindHistory or FindHistoryWithForecast response for possible values and meanings. |
| registryCode | string (3) | Registry where message was sent. All 56 jurisdictional registries are supported, which include the 50 USPS state codes (code list), plus the following: DC: District of Columbia PR: Puerto Rico NYC: New York City, NY PHL: Philadelphia, PA SJB: San Joaquin Region, CA SAN: San Diego County, CA |
| requestType | string (23) | Type of request the message represents: FindHistory FindHistoryWithForecast UpdateHistory |
| status | string (9) | Status of the request: Found – exactly one message found (details included in the other fields) NotFound – no message found matching provided messageKey (no other details provided) NotUnique – multiple messages found matching provided |

| | | |
|--|--|--|
| | | messageKey (no other details provided) |
|--|--|--|

Object Definitions

The following sections define the data objects used in the resource representations. Objects are listed in alphabetical order. Notes:

1. All date and datetime fields use ISO 8601 format, e.g., 1980-01-01T00:00:00 or 1980-01-01.
2. If provided datetime value is equal to 0001-01-01 value, it is an invalid date.
3. Any string field without a specified length is passed to and returned from the registry as-is and unmapped, so its maximum length will vary.
4. Mapped fields can contain whatever set of values the calling system utilizes and will be mapped to and from registry-recognized values.

Address

```
{
  "addressType": {string},
  "city": {string},
  "country": {string},
  "county": {string},
  "state": {string},
  "streetAddress1": {string},
  "streetAddress2": {string},
  "zip": {string}
}
```

| Property Name | Type (len) | Required? | Mapped? | Description |
|----------------|--------------|-----------|---------|---|
| addressType | string (3) | | | Type of address (code list). Preferred address type is L (Legal). Defaults to L (Legal) if not sent. |
| city | string (50) | | | City component of the address. |
| country | string (3) | | | Country component of the address. Use ISO 3166-1 Alpha-3 country codes (code list). Value for United States is USA. |
| county | string (50) | | | County component of the address. |
| state | string (50) | | | State component of the address. Use USPS two-character codes for USA addresses (code list). |
| streetAddress1 | string (120) | | | Street address component of the |

| | | | | |
|----------------|--------------|--|--|---|
| | | | | address. |
| streetAddress2 | string (120) | | | Second line of the street address component of the address. |
| zip | string (12) | | | Zip code component of the address. |

AntigenEvaluation

```
{
  "antigenName": {string},
  "evaluationReason": {string},
  "evaluationStatus": {string},
  "seriesCompletedByDose": {string},
  "seriesName": {string},
  "targetDoseNumber": {int},
  "vaccineGroup": {string}
}
```

| Property Name | Type (len) | Required? | Mapped? | Description |
|---------------|------------|-----------|---------|--|
| antigenName | string | | | Name of the antigen being evaluated. Possible values: Cholera Diphtheria HepA HepB Hib HPV Influenza Japanese Encephalitis Measles Meningococcal Meningococcal B Mumps Pertussis Pneumococcal Polio Rabies Rotavirus Rubella Tetanus Typhoid Varicella Yellow Fever Zoster |

| | | | | |
|-----------------------|--------|--|--|---|
| evaluationReason | string | | | The possible values are constrained by the evaluationStatus value. Following is a list of all possible values: GRACE_PERIOD INADVERTENT_ADMINISTRATION INCORRECT_GENDER LESS_THAN_RECOMMENDED_VOLUME LIVE_VIRUS_CONFLICT TOO_OLD TOO_SOON TOO_YOUNG |
| evaluationStatus | string | | | Possible values returned: EXTRANEIOUS NONE NOT_VALID SUB_STANDARD VALID |
| seriesCompletedByDose | string | | | Possible values returned: true false |
| seriesName | string | | | ACIP series that the forecaster determines best fits the patient's vaccination history |
| targetDoseNumber | Int | | | Dose number of this vaccination within the ACIP series identified above |
| vaccineGroup | string | | | Group this antigen fits |

Authentication

```
{
  "licenseKey": {string},
  "password": {string},
  "subscriberId": {int}
}
```

| Property Name | Type (len) | Required? | Mapped? | Description |
|---------------|--------------|-----------|---------|--|
| licenseKey | string (36) | Y | | GUID license key provided by STC. |
| password | string (240) | Y | | Password provided by STC. |
| subscriberId | int | Y | | Identifies the organization that owns the data. This identifier provided by STC. |

FillerAndProviderOrder

```
{
  "enteredBy": {Provider},
  "orderNumber": {string},
  "provider": {Provider}
}
```

| Property Name | Type (len) | Required? | Mapped? | Description |
|---------------|--------------|---------------------------|---------|---|
| enteredBy | Provider | | | Individual who keyed in the data. |
| orderNumber | string (199) | Conditional (see note) | | Order number for provider's orders for this immunization. This field is required when the historical flag is false. If not sent, this field will be auto-populated with a generated number. |
| provider | Provider | Conditional (see note) | | Individual who signed or filled the order for this patient. This field is required when the historical flag is false. If not sent as part of a provider order, this field will be auto-populated with the administering provider id and name. |

ForecastDetail

```
{
  "doseNumber": {int},
  "familyCode": {string},
  "maxAllowableDate": {date},
  "minAllowableDate": {date},
  "pastDueDate": {date},
  "recommendedDate": {date},
  "status": {string}
}
```

| Property Name | Type (len) | Required? | Mapped? | Description |
|---------------|------------|-----------|---------|--|
| doseNumber | int | | | Next dose the patient is due for. |
| familyCode | string | | | Vaccine family of the series, for instance. Values returned are numeric with the following meanings: 1 DTaP/DT/Td |

| | | | | |
|------------------|-------------|--|--|---|
| | | | | 2 HIB 3 POLIO 4 HEP-B 3 DOSE 5 MMR 6 VARICELLA 7 MENINGOCOCCAL 9 HEP-A 10 FLU 11 PNEUMO (PCV) 12 HEP-B 2 DOSE 13 ANTHRAX 14 SMALLPOX SHOT/READING 15 MEASLES 16 MUMPS 17 RUBELLA 18 PNEUMO (PPSV) 20 ROTAVIRUS 21 HPV 22 HERPES ZOSTER 23 NOVEL INFLUENZA H1N1-09 24 Tdap |
| maxAllowableDate | date | | | Used for vaccine series, such as Rotavirus, where the patient does not receive Dose 1 of the series after a specific age. Date is formatted yyyyymmdd. |
| minAllowableDate | date | | | Earliest date that the patient can receive a dose in the series. Date is formatted yyyyymmdd. |
| pastDueDate | date | | | Date at which the patient is considered late, or past due, for the specified dose in the series. Date is formatted yyyyymmdd. |
| recommendedDate | date | | | Recommended date for the specified dose in the series. Date is formatted yyyyymmdd. |
| status | string (10) | | | Text description of the patient's status for the series. Values returned are: Up to Date: Current date is before the recommended date. Due Now: Current date is between the recommended date and the past due date. Past Due: Current date is after the past due date. |

Guardian

```
{
  "addressList": [{Address}],
  "email": {string},
  "name": {Name},
  "phoneNumberList": [{PhoneNumber}],
  "relationship": {string}
}
```

| Property Name | Type (len) | Required? | Mapped? | Description |
|-----------------|-----------------------------|-----------|---------|--|
| addressList | array of <i>Address</i> | | | Collection of guardian's addresses. |
| email | string (199) | | | Guardian's email address. |
| name | <i>Name</i> | Y | | Guardian's name. |
| phoneNumberList | array of <i>PhoneNumber</i> | | | Collection of guardian's phone numbers. |
| relationship | string (250) | Y | Y | Guardian's relationship to patient. ImmsLink will translate any code set to registry-recognized values. ImmsLink natively supports FTH, MTH, GRD and SLF as a subset of relationship type (code list). |

Insurance

```
{
  "insuranceCompanyId": {string},
  "insurancePlanId": {string},
  "medicaidCaseNumber": {string},
  "medicareHealthInsuranceNumber": {string},
  "planType": {string},
  "policyNumber": {string},
  "verificationDateTime": {datetime}
}
```

| Property Name | Type (len) | Required? | Mapped? | Description |
|--------------------|--------------|-----------|---------|-----------------------------|
| insuranceCompanyId | string (250) | | Y | Identifier of the insurance |

| | | | | |
|-------------------------------|--------------|---|--|---|
| | | | | company. ImmsLink will translate any code set to registry-recognized values. ImmsLink natively supports NAIC values recognized by the states that utilize insurance. Unsupported values are defaulted to unknown. |
| insurancePlanId | string (250) | | | Identifier of the insurance plan. This field is not currently used. |
| medicaidCaseNumber | string | | | Medicaid policy number. |
| medicareHealthInsuranceNumber | string | | | Insurance number found on the Medicare card. |
| planType | string (3) | | | Insurance plan type. This field is not currently used. |
| policyNumber | string (15) | | | Insurance policy number for insured and Medicaid/Medicare patients. |
| verificationDateTime | datetime | Y | | Date the insurance information was verified. Information should be verified on the date of immunization. |
| insuranceCompanyName | string | | | Name of insurance company. |

Location

```
{
  "address": {Address},
  "id": {string},
  "name": {string},
  "npi": {string}
}
```

| Property Name | Type (len) | Required? | Mapped? | Description |
|---------------|--------------|-----------|---------|--|
| address | Address | | | Physical address of the location. |
| id | string (200) | Y | Y | Identifier of the location. ImmsLink will translate the local identifier for location to registry-recognized values. |

| | | | | |
|------|-------------|---|--|-----------------------|
| name | string (50) | Y | | Name of the location. |
| npi | string (10) | | | NPI of the location. |

Name

```
{
  "firstName": {string},
  "lastName": {string},
  "middleName": {string},
  "nameCode": {string},
  "professionalSuffix": {string},
  "suffix": {string}
}
```

| Property Name | Type (len) | Required? | Mapped? | Description |
|--------------------|-------------|------------------------|---------|---|
| firstName | string (30) | Conditional (see note) | | Individual's first name. This field is required in all <i>Name</i> fields except for mother's maiden name in the <i>PatientData</i> object. |
| lastName | string (50) | Conditional (see note) | | Individual's last name. This field is required in all <i>Name</i> fields except for the <i>Provider</i> object. |
| middleName | string (30) | | | Individual's middle name. Registries use this field for matching patient names. Include in the <i>patientName</i> field when available. |
| nameCode | string (1) | | | Type of name (code list). Defaults to M (Maiden) for mother's maiden name and L (Legal) for all other names. |
| professionalSuffix | string | | | Individual's professional suffix. This value should be sent for any individuals with a professional suffix (e.g., providers). |
| suffix | string | | | Individual's name suffix (e.g., Jr., III, etc.) |

Observation

```
{
  "code": {string},
  "date": {datetime},
}
```

```

"description": {string},
"observationType": {string},
"result": {string}
}

```

| Property Name | Type (len) | Required? | Mapped? | Description |
|-----------------|--------------|-----------|---------|---|
| code | string (50) | | | SNOMED code indicating the observation or test result. Accepted values depend on the observationType: 59784-9 click here for list 75505-8 click here for list |
| date | datetime | Y | | Date the observation was made or the test was performed |
| description | string (999) | | | Human-readable description of the observation or test |
| observationType | string (50) | | | LOINC code indicating the type of observation or test. Accepted values are: 59784-9 (Disease with presumed immunity) 75505-8 (Disease with serological evidence of immunity) |

PatientData

```

{
  "addressList": [{Address}],
  "birthOrder": {string},
  "chickenpoxHistoryDate": {datetime},
  "dateOfBirth": {datetime},
  "deathIndicator": {boolean},
  "deathIndicatorDate": {datetime},
  "emailAddress": {string},
  "extendedProtectionIndicator": {string},
  "forecastDetailList": [{ForecastDetail}],
  "forecastEvaluationData": [{VaccinationEvaluation}],
  "grade": {string},
  "guardianList": [{Guardian}],
  "hasChickenpoxHistory": {boolean},
  "insurance": {Insurance},
  "location": {Location},
  "medicalRecordNumber": {string},
}

```

```

"motherMaidenName": {Name},
"multipleBirthIndicator": {boolean},
"observationList": [{Observation}],
"occupation": {string},
"patientEthnicity": {string},
"patientName": {Name},
"patientRace": {string},
"patientStatus": {string},
"patientStatusDate": {datetime},
"phoneNumberList": [{PhoneNumber}],
"primaryLanguage": {string},
"protectionIndicator": {boolean},
"protectionIndicatorDate": {datetime},
"publicityCode": {string},
"publicityCodeDate": {datetime},
"registryCode": {string},
"relevantIndicatorList": [{string}],
"sex": {string},
"ssn": {string},
"stateRegistryId": {string},
"vaccinationList": [{Vaccination}]

```

| Property Name | Type (len) | Required ? | Mapped ? | Description |
|-----------------------------|------------------|------------------|----------|--|
| addressList | array of Address | Y | | Collection of patient's addresses. |
| birthOrder | string (2) | Cond. (see note) | | birthOrder is required if multipleBirthIndicator is true. ImmsLink supports a one- or two- digit value (1-99). |
| chickenpoxHistoryDate | datetime | | | Patient's chickenpox infection date. Used to document presumed immunity based on a history of infection. |
| dateOfBirth | datetime | Y | | Patient's birthdate. |
| deathIndicator | boolean | | | Whether or not patient is deceased. |
| deathIndicatorDate | date | | | Date deathIndicator was changed. |
| emailAddress | string (199) | | | Patient's email address. |
| extendedProtectionIndicator | string (3) | Cond. (see note) | | Required for jurisdictions that require more |

| | | | | |
|------------------------|---------------------------------------|------------------|--|--|
| | | | | granularity than the typical boolean protectionIndicator. This value is not mapped but passed through to the registry. |
| forecastDetailList | array of <i>ForecastDetail</i> | | | Collection of patient's recommended immunizations/dates. Only used in FindHistoryWithForecast response. |
| forecastEvaluationData | array of <i>VaccinationEvaluation</i> | | | Only used in FindHistoryWithForecast response. Evaluation of patient's vaccination history per ACIP schedule. This is populated when the client sets returnForecastEval to true in the request. |
| grade | string | | | Patient's grade level in school. |
| guardianList | array of <i>Guardian</i> | Cond. (see note) | | Collection of patient's guardians. This field is required if the patient is less than 19 years old. |
| hasChickenpoxHistory | boolean | | | Indicator of whether patient has a history of chickenpox disease. |
| insurance | <i>Insurance</i> | Cond. (see note) | | Patient's insurance information. This field is required for UpdateHistory in some jurisdictions (Idaho, Massachusetts, New Hampshire and New Mexico) to support their state-funded vaccine programs. |
| location | <i>Location</i> | Y | | Location where the patient's immunization was given or from where the patient's history is being queried. |

| | | | | |
|------------------------|-----------------------------|------------------|---|--|
| medicalRecordNumber | string (15) | Y | | Patient's identifier within the calling system. |
| motherMaidenName | <i>Name</i> | Cond. (see note) | | Patient's mother's maiden name. This field is required for UpdateHistory in some jurisdictions and is used in many jurisdictions to match patients for FindHistory and FindHistoryWithForecast. It is highly recommended to include it when available. |
| multipleBirthIndicator | boolean | | | Boolean value to indicate multiple birth count |
| observationList | array of <i>Observation</i> | | | Patient medical conditions (e.g., an immunity to disease or a chronic illness) |
| occupation | string (30) | | | Occupation of patient |
| patientEthnicity | string (250) | Cond. (see note) | Y | Patient's self-reported ethnicity. This is required for UpdateHistory in some jurisdictions. ImmsLink natively supports registry-recognized values: <ul style="list-style-type: none"> • 2135-2 (Hispanic or Latino) • 2186-5 (Not Hispanic or Latino) Locally defined values can be mapped. |
| patientName | <i>Name</i> | Y | | Patient's name. |
| patientRace | string (250) | Cond. (see note) | Y | Patient's self-reported race. This is required for UpdateHistory in some jurisdictions. ImmsLink natively supports |

| | | | | |
|-------------------------|-----------------------------|------------------|---|---|
| | | | | registry-recognized values (code list) and can map to locally-defined values. |
| patientStatus | string (1) | Y | | Patient's status with respect to the sending organization (code list). |
| patientStatusDate | datetime | Y | | Effective date of patient's status. |
| phoneNumberList | array of <i>PhoneNumber</i> | | | Collection of patient's phone numbers. This field is used by registries to match patients for FindHistory and FindHistoryWithForecast. It is highly recommended to include it when available. |
| primaryLanguage | string (250) | | Y | Patient's preferred language. ImmsLink natively supports registry-recognized ISO 639 values (code list) and can map to locally-defined values |
| protectionIndicator | boolean | Cond. (see note) | | Indicator of whether patient wishes to protect (not share) immunization data (true = protect, do not share). Jurisdictions have varying laws respecting this indicator. See the ImmsLink Implementation Guide for further information on which states require this field. |
| protectionIndicatorDate | datetime | Cond. (see note) | | Effective date of patient's protection indicator. If protectionIndicator is populated, this field is required. |

| | | | | |
|-----------------------|-----------------|------------------|---|--|
| publicityCode | string (50) | | Y | Defines how patient wishes to be contacted for reminders in the IIS. ImmsLink natively supports registry-recognized values (code list) and can map to locally defined values. This field is optional but can be utilized if the client base is interested in utilizing reminder functionality provided by the state IIS. |
| publicityCodeDate | datetime | Cond. (see note) | | Effective date of patient's contact reminder preference. If publicityCode is populated, this field is required. |
| registryCode | string (3) | | | (Reserved to support future multi-registry requirements.) |
| relevantIndicatorList | array of string | | | List of observations or factors that can influence a patient's forecast recommendations. Currently, the only recognized values are: 1) diabetes 2) cardio |
| sex | string (1) | Y | Y | Patient's sex. Natively supported values are: M – male F – female U – unknown Locally defined values can be mapped. |
| ssn | string (15) | | | Patient's social security number (no longer used due to privacy concerns). Do not send. |
| stateRegistryId | string (15) | | | Patient's identifier in the registry (for patients who have been |

| | | | | |
|-----------------|-----------------------------|---|--|--|
| vaccinationList | array of <i>Vaccination</i> | Y | | queried). Collection of patient's vaccinations. This is returned by most registries in the query response but is not a required field, so it is not guaranteed to be populated. |
|-----------------|-----------------------------|---|--|--|

Phone Number

```
{
  "areaCode": {string},
  "equipmentType": {string},
  "phoneNumber": {string},
  "phoneType": {string}
}
```

| Property Name | Type (len) | Required? | Mapped? | Description |
|---------------|------------|-----------|---------|---|
| areaCode | string (5) | | | Area code component of the number. If areaCode is populated, phoneNumber should also be populated. |
| equipmentType | string (2) | | | Telecommunication equipment type (code list). Defaults to PH if not sent. |
| phoneNumber | string (9) | | | Non-area code component of the number. If phoneNumber is populated, areaCode should also be populated. |
| phoneType | string (4) | | | Type of phone number (code list). Defaults to PRN (primary residence number) if not sent. |

Provider

```
{
  "assigningAuthority": {string},
  "idNumber": {string},
  "identifierTypeCode": {string},
  "name": {Name}
}
```

| Property Name | Type (len) | Required? | Mapped? | Description |
|--------------------|-------------|-----------|---------|--|
| assigningAuthority | string (20) | | | Identifies organization responsible for issuing the provider's identifier. In the case of NPI, this is CMS. For internal identifiers, can be sent as null and will be defaulted. |
| idNumber | string (15) | Y | | Provider's identifier within the calling system. For persons with an NPI, it is preferred for this field to contain the NPI. Note: NPI must be the value assigned to the individual, not the NPI assigned to the location. |
| identifierTypeCode | string (15) | | | Provider's identifier type, e.g., NPI. |
| name | <i>Name</i> | Y | | Provider's name. |

QueryResponseException

```
{
  "resubmitCount": {int},
  "retryStatus": {string},
  "scheduledTime": {datetime},
  "totalRetries": {int}
}
```

| Property Name | Type (len) | Required? | Mapped? | Description |
|---------------|------------|-----------|---------|---|
| resubmitCount | int | | | Most recent attempt # for this message. Normally ImmsLink attempts 3 times before failing; however, this cycle of three is sometimes restarted. |
| retryStatus | string (8) | | | Retrying – Attempting to resend the message at a defined interval. Review – Failed to resend the message multiple times and the message now requires manual review. Okay – Successfully processed the message. Fail – System failure resending the message. Requires manual review. InProg – Preparing to attempt first |

| | | | | |
|---------------|----------|--|--|--|
| | | | | resend of message. |
| scheduledTime | datetime | | | Time at which the next attempt will be made (only valid if retryStatus is Retrying). |
| totalRetries | int | | | Cumulative number of attempts made to send message (could be more than three if the retry cycle is restarted). |

Vaccination

```
{
  "actionCode": {string},
  "administeredBy": {Provider},
  "administrationRoute": {string},
  "administrationSite": {string},
  "cvrsAdminType": {string},
  "dosageUnitOfMeasure": {string},
  "doseAmount": {string},
  "doseNumber": {int},
  "expirationDate": {datetime},
  "families": [{ string }],
  "fillerOrder": {FillerAndProviderOrder},
  "fundingSource": {Provider},
  "historical": {boolean},
  "immunizationDate": {datetime},
  "inEhr": {boolean},
  "inRegistry": {boolean},
  "location": {Location},
  "lotNumber": {string},
  "manufacturerCode": {string},
  "messageList": [{VaccineMessage}],
  "ndc": {string},
  "patientOccupation": {string},
  "priorityGroup": {string},
  "providerOrder": {FillerAndProviderOrder},
  "refusalReason": {string},
  "seriesCompletion": {boolean},
  "vaccineCode": {string},
  "vfcStatus": {string},
  "visStatementList": [{VisStatement}],
  "vtrcksPin": {string}
}
```

| Property Name | Type (len) | Required? | Mapped? | Description |
|---------------------|-----------------|------------------------|---------|---|
| actionCode | string (1) | | | Vaccination's record type. Only used in UpdateHistory. Indicates action registry should take: A – add U – update D – delete If not sent, defaults to A. |
| administeredBy | <i>Provider</i> | Conditional (see note) | | Individual administering vaccination. This field is required when the historical flag is false. |
| administrationRoute | string (250) | Conditional (see note) | Y | Identifies the route (e.g., intramuscular) through which the vaccination was administered. ImmsLink natively supports registry-recognized values (code list) and can map to locally-defined values. This field is required when the historical flag is false. |
| administrationSite | string (250) | Conditional (see note) | Y | Identifies the site (e.g., left arm) where the vaccination was administered. ImmsLink natively supports registry-recognized values (code list) and can map to locally-defined values. This field is required when the historical flag is false. |
| cvrsAdminType | string (2) | | | Corresponds to the admin_type field in the CVRS specification (here). Used if STC is submitting CVRS data to the CDC on customer's behalf. (Note that an empty value will be translated to UNK, so only the recognized |

| | | | | |
|---------------------|-------------------------------|------------------------|---|---|
| | | | | numeric values should be used.) |
| cvx | string (3) | Conditional (see note) | | CVX value for this vaccine. This field is preferred over the vaccineCode field; however, the ndc field is preferred over this one, so if ndc is populated, this field should be blank. Field should be the 2- or 3-digit value from the standard CVX list on the CDC website. If neither ndc nor this field is populated, then vaccineCode is required. |
| dosageUnitOfMeasure | string (50) | Conditional (see note) | | Unit of measure for the vaccine dose amount, e.g., mL. This field is required when the historical flag is false. |
| doseAmount | string (20) | Conditional (see note) | | Vaccine's dose amount, e.g., 0.5. This field is required when the historical flag is false. |
| doseNumber | int | | | Dose number of the series of the vaccine being administered |
| expirationDate | datetime | Conditional (see note) | | Vaccine's expiration date. This field is required when the historical flag is false. |
| families | array of string | | | Vaccine family to be returned |
| fillerOrder | <i>FillerAndProviderOrder</i> | | | Vaccination filler order details. |
| fundingSource | string (50) | Conditional (see note) | Y | Identifies whether the vaccination was purchased with public funds. Sites that do not participate in the Vaccines for Children (VFC) program should send PHC70 (can be defaulted if not sent). |

| | | | | |
|------------------|-----------------|---------------------------|--|---|
| | | | | <p>Sites that do participate in the VFC program are required to send this field. ImmsLink natively supports:</p> <ul style="list-style-type: none"> • PHC70: Private • VXC1: Federal funds • VXC2: State funds <p>and will translate any code set to registry-recognized values.</p> |
| historical | boolean | Y | | Identifies whether a vaccination is historical (i.e., recorded from the patient's documented history). |
| immunizationDate | datetime | Y | | Date the vaccination was given. |
| inEhr | boolean | | | Only used in FindHistoryWithForecast response. Indicates whether this vaccination was one sent in the request (as opposed to one found only in the registry). |
| inRegistry | boolean | | | Only used in FindHistoryWithForecast response. Indicates whether this vaccination was one found in the registry (as opposed to one only supplied in the request from the calling system). |
| location | <i>Location</i> | | | Location where the vaccination was given. This field is optional in case of historical vaccines. The address component is used as the administered address for CVRS reporting. |
| lotNumber | string | Conditional (see note) | | Vaccine's lot number. This field is required |

| | | | | |
|-------------------|--------------------------------|------------------------|---|--|
| | | | | when the historical flag is false. |
| manufacturerCode | string (250) | Conditional (see note) | Y | Vaccine's manufacturer. Because this is a mapped field, ImmsLink will translate any code set to/from the registry-recognized MVX codes defined by the CDC (code list). This field is required when the historical flag is false. Both MVX codes and NDC Number (first 5 digits only) are supported natively. |
| messageList | array of <i>VaccineMessage</i> | | | Only used in FindHistoryWithForecast response. Indicates warning or revaccination needed for this vaccination record. |
| ndc | string (13) | Conditional (see note) | | NDC value for this vaccine. This field is preferred over the vaccineCode and cvx fields. Field should be the 11-digit unit-of-use value with optional hyphens. If this field is not populated, then either cvx or vaccineCode is required. |
| patientOccupation | string (50) | Conditional (see note) | | Used in vaccination notes for those registries that require it for COVID immunization reporting. |
| priorityGroup | string (50) | Conditional (see note) | | Used as population group observation value for those registries that require it for COVID immunization reporting. |
| providerOrder | <i>FillerAndProviderOrder</i> | Conditional (see note) | | Vaccination's order details. This field is required when the historical flag is false. |
| refusalReason | string (250) | | Y | Use in UpdateHistory request only if the patient |

| | | | | |
|------------------|--------------|------------------------|---|---|
| | | | | <p>has been offered a vaccination and opts to not receive it. ImmsLink natively supports:</p> <ul style="list-style-type: none"> • 00: Parental decision • 01: Religious exemption • 02: Other • 03: Patient decision <p>and will translate any code set to registry-recognized values.</p> |
| seriesCompletion | boolean | | | Indicates whether vaccine series is complete for patient |
| vaccineCode | string (250) | Conditional (see note) | Y | <p>(deprecated) Identifies the vaccine given. Because this is a mapped field, ImmsLink will translate any code set to/from the registry-recognized CVX codes defined by the CDC (code list).</p> <p>It is preferred that senders populate either the ndc field or the cvx field instead of this one. If ndc or cvx is populated, this field should be blank. One of the three fields must be populated.</p> |
| vfcStatus | string (250) | Conditional (see note) | Y | <p>Identifies whether patient is eligible to have this vaccination paid for with public funds. Sites that do not participate in the Vaccines for Children (VFC) program should send Ineligible or its equivalent (can be defaulted if not sent). Sites that do participate in the VFC program are</p> |

| | | | | |
|------------------|------------------------------|------------------------|--|---|
| | | | | required to send this field. ImmsLink natively supports registry-recognized values (code list) and can map to locally-defined values. |
| visStatementList | array of <i>VisStatement</i> | Conditional (see note) | | Identifies the VIS information given to patient at the time of vaccination. This field is required when the historical flag is false. |
| vtrcksPin | string (6) | | | The 6-digit provider PIN in VTrckS. For VFC providers, this is the VFC PIN. This ID is being used for linking across data sources in CVRS reporting. |

VaccinationEvaluation

```
{
  "antigenEvaluationList": [{AntigenEvaluation}],
  "vaccineCvx": {string},
  "vaccineDate": {string},
  "vaccineDoseVolume": {string},
  "vaccineMvx": {string},
  "vaccineName": {string}
}
```

| Property Name | Type (len) | Required? | Mapped? | Description |
|-----------------------|-----------------------------------|-----------|---------|--|
| antigenEvaluationList | array of <i>AntigenEvaluation</i> | | | List of evaluations for each antigen in this vaccination (many vaccinations have multiple) |
| vaccineCvx | string | | | CVX code for this vaccination (code list) |
| vaccineDate | string | | | Date of this vaccination (yyyymmdd format) |
| vaccineDoseVolume | string | | | Dose volume of this vaccination (as provided to the forecaster) |
| vaccineMvx | string | | | MVX code for this vaccination (code list) |

| | | | | |
|-------------|--------|--|--|--------------------------|
| vaccineName | string | | | Name of this vaccination |
|-------------|--------|--|--|--------------------------|

VaccineMessage

```
{
  "message": {string},
  "messageType": {int}
}
```

| Property Name | Type (len) | Required? | Mapped? | Description |
|---------------|------------|-----------|---------|--|
| message | string | | | Message text (length varies). |
| messageType | int | | | Message's type: 0 – Warning 1 – InvalidVaccine |

VisStatement

```
{
  "visBarcode": {string},
  "visDateGiven": {datetime},
  "visStatementDate": {datetime},
  "visStatementType": {string}
}
```

| Property Name | Type (len) | Required? | Mapped? | Description |
|------------------|--------------|-----------|---------|---|
| visBarcode | string (250) | See note. | Y | VIS statement's barcode (numeric representation). Either barcode or type/date should be sent. Mapping will happen automatically per the registry's requirements. Barcode values are defined by the CDC (code list). |
| visDateGiven | datetime | Y | | Date the patient was given the VIS statement. |
| visStatementDate | datetime | See note. | | VIS statement's edition date. Either barcode or type/date should be sent. Mapping will happen automatically per the registry's requirements. |
| visStatementType | string (250) | See note. | Y | VIS statement's type. Either barcode or type/date should be sent. Mapping will happen automatically per the registry's requirements. A typical mapping is to |

| | | | | |
|--|--|--|--|--|
| | | | | send the CVX code in this field (same value that is sent in vaccination.cvx). ImmsLink will map to the CVX code for the unspecified version of the vaccine, which is what the registry uses. |
|--|--|--|--|--|